

E. D. FINCH.
Mechanical-Telephones.

No. 216,840.

Patented June 24, 1879.

Fig. 1.

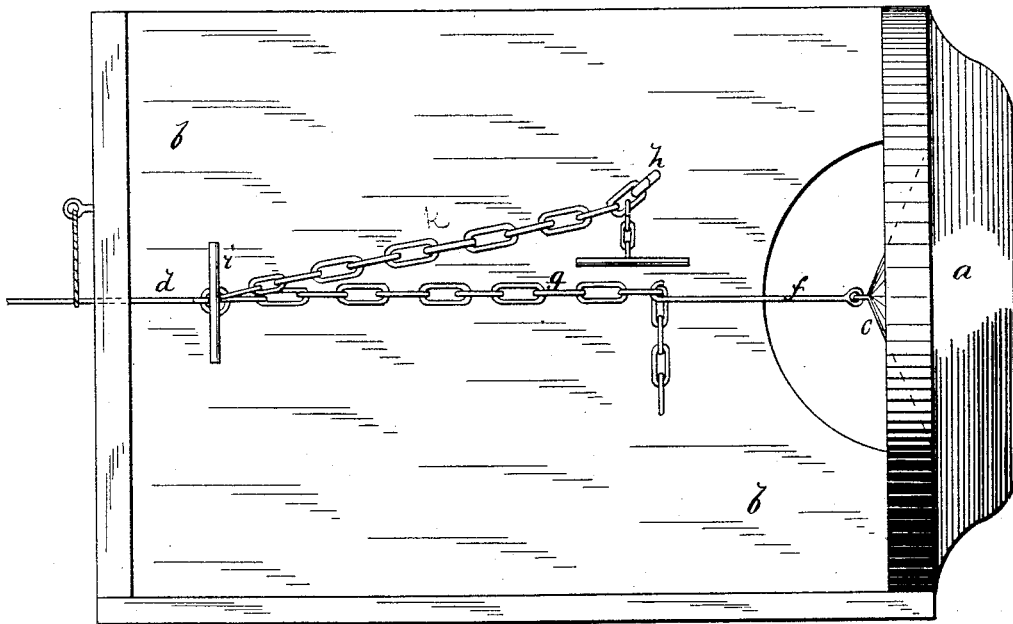
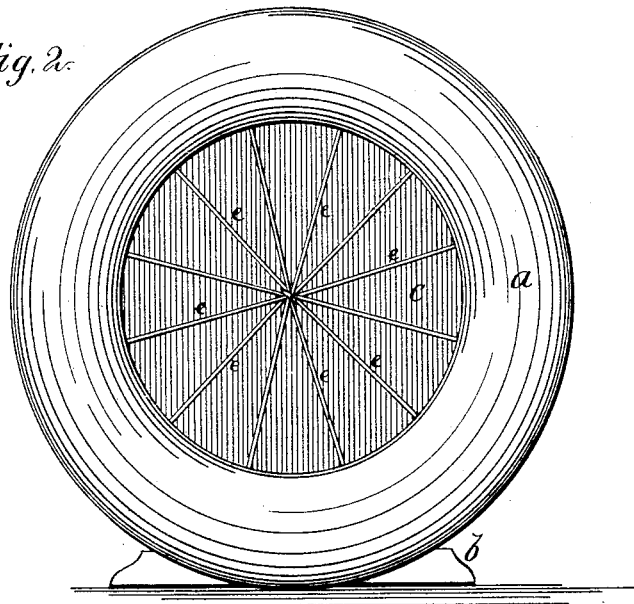


Fig. 2.



WITNESSES:

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EDWIN D. FINCH, OF STANTON, MICHIGAN.

IMPROVEMENT IN MECHANICAL TELEPHONES.

Specification forming part of Letters Patent No. **216,840**, dated June 24, 1879; application filed March 11, 1879.

To all whom it may concern:

Be it known that I, EDWIN D. FINCH, of Stanton, in the county of Montcalm and State of Michigan, have invented a new and Improved Mechanical Telephone, of which the following is a specification.

My improvements relate to mechanical telephones, wherein the vibrations of a diaphragm are transmitted by a cord or wire to a receiving-diaphragm at a distance; and the invention consists in certain novel features of construction whereby the vibrations are concentrated upon the line more perfectly than heretofore and false vibrations prevented; also, in means for adjusting the tension of the line and diaphragms, and relieving the diaphragms of tension when not in use.

In the accompanying drawings, Figure 1 is a side elevation of my improved telephone. Fig. 2 is a face view of the diaphragm and holder.

Similar letters of reference indicate corresponding parts.

In the drawings, *a* is the mouth-piece and diaphragm-holder, which is made in the form of a ring and sustained upon a stand, *b*.

c is the diaphragm, which is made of silk, muslin, or other suitable material, and covers the central orifice of holder *a*.

Upon the face of the diaphragm *c* are arranged converging radial wires *e*, which are united together at the center of *c*, and clamped in holder *a* at the periphery of the diaphragm. These wires *e* are preferably of small diameter, and connect with line *d* by a hook-ended piece, *f*, at a central aperture in *c*, so that when the line is under tension the wires *e* lie closely upon and vibrate with diaphragm *c*, but will not vibrate independently of *c*.

The action of the radial wires *e* is to collect the vibrations of the diaphragm and concentrate them most perfectly upon the conducting-line. The wires *e* are united as one wire at the center, where they connect to the line.

By this construction false vibrations and sounds are prevented, and the roaring sound which usually accompanies conversation with telephones is avoided. The diaphragm is also rendered much more sensitive to sound than heretofore, and gives the natural tone and articulation more perfectly.

The line between hook *f* and the main por-

tion consists of a chain, *g*, that is attached to *d* and hooks upon *f*, whereby the tension of the line may be increased or slackened by taking upon one or more links of the chain. The chain *g* also extends from its point of connection to *d* to a hook-stud, *h*, on stand *b*, or other fixed point, whereby when the portion of the chain that is connected is sufficiently slackened the tension of the line will be upon stud *h* and the diaphragm *c* relieved.

To facilitate unhooking the chain, a bar, *i*, is attached upon *d* or the chain, which may be grasped for drawing on the line and slacking the chain while it is being shifted.

This construction permits transfer of the tension of the line from the diaphragm to the windlass, or vice versa, in a moment. The diaphragm *c* may therefore be relieved of strain when not in use, or it may be set with just enough tension to respond to a call. The normal tension of the line may be also adjusted by the chain *h*.

I have discovered in the use of telephones that the results are much more perfect when the diaphragms at opposite ends of the line are of different material, say one of silk and the other of linen, or vary in size, say a difference of one or two inches in diameter. The effect is to flatten the sounds and prevent echoes on the line, which I believe to be due to the difference in the time and amplitude of the vibrations.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent—

1. The wires *e*, arranged on the outer face of the diaphragm *c*, so as to converge toward the center of the same, where they are united together and connected to the line *d*, in combination with the diaphragm *c*, substantially as and for the purpose set forth.

2. The hook *f* and the chain *g*, in combination with the diaphragm *c* and the line *d*, substantially as and for the purpose set forth.

3. The chain *g* and the stud *h*, in combination with the line *d* and the diaphragm *c*, substantially as and for the purpose set forth.

EDWIN DAVID FINCH.

Witnesses:

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